Beginners Guide to Wattbike Expert Software

Index

Introduction 2

Connecting the software to the Wattbike Performance Computer – the default Polar screen and editing the display bar 3

The analysis modules graph (AMGraph) and defining the graph and editing the analysis modules 9

Viewing a Saved workout – Pedal revolution and Time modes 14

Transferring a workout from the Wattbike Performance Computer 19

How to Update the Wattbike Performance Computer Firmware 21

How to race against the computer 24

Other useful functions 28-31

- **A - Scientific mode**
- **B - Personal file management**
- **C - Exporting data**
- **D - Open file Toolbar**
- **E - Start analyse from first sample**

Introduction

Wattbike Expert Software monitors up to 39 different parameters each pedal revolution which are all recorded even when the number of parameters viewed is restricted.

There software opens up in default mode showing 3 parameters when the Wattbike is connected live to the software (**Cadence [1/min], Heart rate [1/min] and Power per revolution [W]**) and 12 parameters when viewing a saved file:

Elapsed time

Cadence [1/min]

Velocity [km/h]

Distance total [m]

Heart rate [1/min]

Pace per 1000m [1/km]

Power per revolution [W]

Power/Kg [W/Kg]

Left and Right leg percent [%]

Left and right leg angle [%]

The number of parameters displayed can be changed as needed.

Before using **Wattbike Expert Software** make sure the **Wattbike Performance Computer** sample rate is set to 100 samples per second (see the Wattbike User Manual).

Connecting the software to the Wattbike Performance Computer – the default Polar screen and editing the display bar

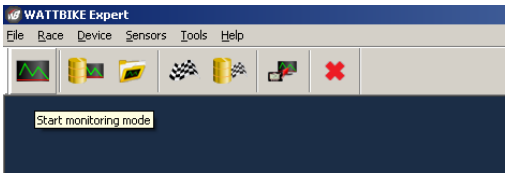
Download and install the latest version of **Wattbike Expert Software** here: **http://wattbike.com/uk/wattbike/downloads/**

1. Connect the **Wattbike Performance Computer** to your PC using a USB cable.

2. Open the software and switch on the **Wattbike Performance Computer**.

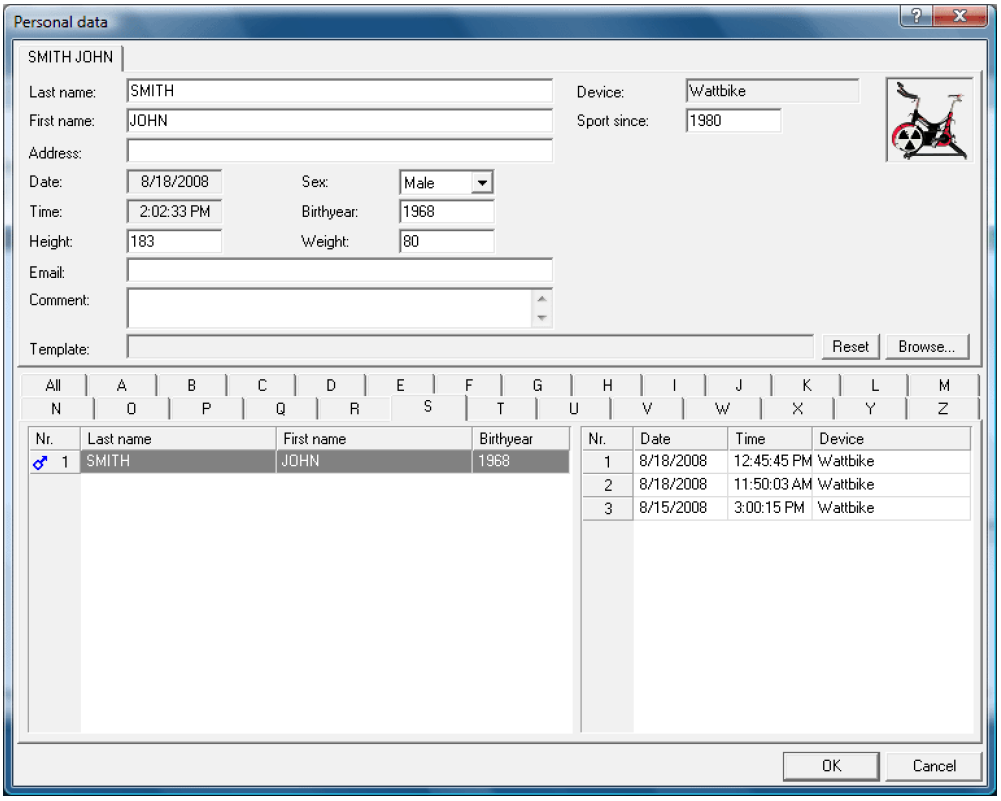
3. From the welcome screen select **Monitor**.

4. Or if the program is open - in the Menu at the top of the screen go to **File** then **Monitor…** or the click on the **Monitor** icon on the **Toolbar (Start monitoring mode)**.



5. The software will automatically detect the **Wattbike Performance Computer.**

6. The **Personal Data** window will appear, fill in detail of the new user or add the workout to an existing user or Personal file double click on user name).



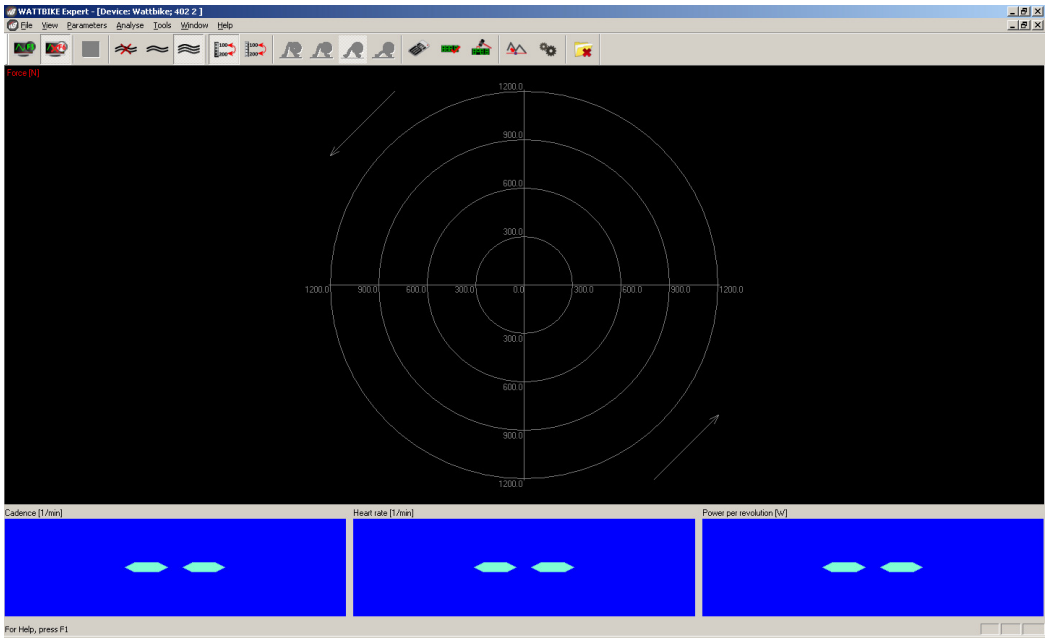
Complete the personal data by:

a) Typing in the data manually.

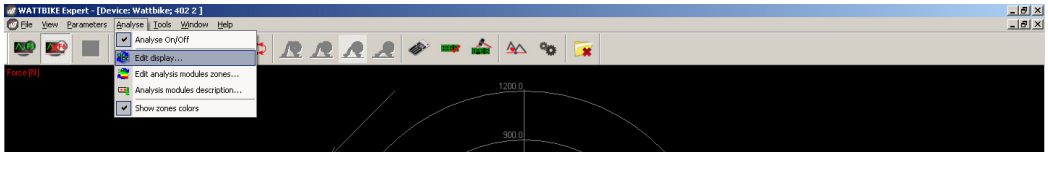
Or

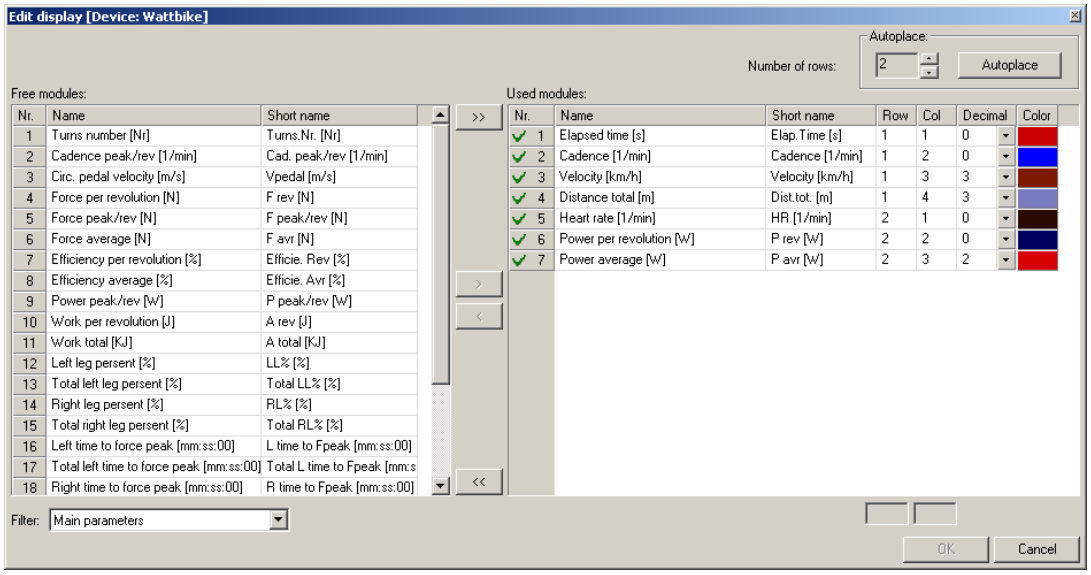
b) If the user data is still in the database, double-click on the users name in the table and the data will be automatically transferred from the database.
c) Click the **OK** button to accept the data.

7. The screen is the system default screen showing the **Polar** (force curve) and three parameters – **Cadence [1/min], Heart rate [1/min]** and **Power per revolution [W]** in the **Display bar** at the bottom of the screen.


WATTBIKE Expert - [Device: Wattbike; 402 2]
File View Parameters Analyse Tools Window Help
Force [N]
Cadence [1/min]
Heart rate [1/min]
Power per revolution [W]
For Help, press F1

8. To show other parameters go to the Menu at the top of the screen **Analyse** then **Edit Display…** and the **Edit display** window will open




Edit display [Device: Wattbike]
Number of rows:
2
Autoplace:
Autoplace
Free modules:
Used modules:
Nr. Name Short name
1 Turns number [Nr] Turns.Nr. [Nr]
2 Cadence peak/rev [1/min] Cad. peak/rev [1/min]
3 Circ. pedal velocity [m/s] Vpedal [m/s]
4 Force per revolution [N] F rev [N]
5 Force peak/rev [N] F peak/rev [N]
6 Force average [N] F avr [N]
7 Efficiency per revolution [%] Efficie. Rev [%]
8 Efficiency average [%] Efficie. Avr [%]
9 Power peak/rev [W] P peak/rev [W]
10 Work per revolution [J] A rev [J]
11 Work total [KJ] A total [KJ]
12 Left leg persent [%] LL% [%]
13 Total left leg persent [%] Total LL% [%]
14 Right leg persent [%] RL% [%]
15 Total right leg persent [%] Total RL% [%]
16 Left time to force peak [mm:ss:00] L time to Fpeak [mm:ss:00]
17 Total left time to force peak [mm:ss:00] Total L time to Fpeak [mm:s
18 Right time to force peak [mm:ss:00] R time to Fpeak [mm:ss:00]
Nr. Name Short name Row Col Decimal Color
1 Elapsed time [s] Elap.Time [s] 1 1 0
2 Cadence [1/min] Cadence [1/min] 1 2 0
3 Velocity [km/h] Velocity [km/h] 1 3 3
4 Distance total [m] Dist.tot. [m] 1 4 3
5 Heart rate [1/min] HR [1/min] 2 1 0
6 Power per revolution [W] P rev [W] 2 2 0
7 Power average [W] P avr [W] 2 3 2
Filter:
Main parameters
OK
Cancel

The **Analysis modules** (parameters) displayed in this example are:

Elapsed time
Cadence [1/min]

Velocity [km/h]
Distance total [m]
Heart rate [1/min]
Power per revolution [W] and Power average [W]

To define the **Analysis modules** (parameters) that should be displayed:

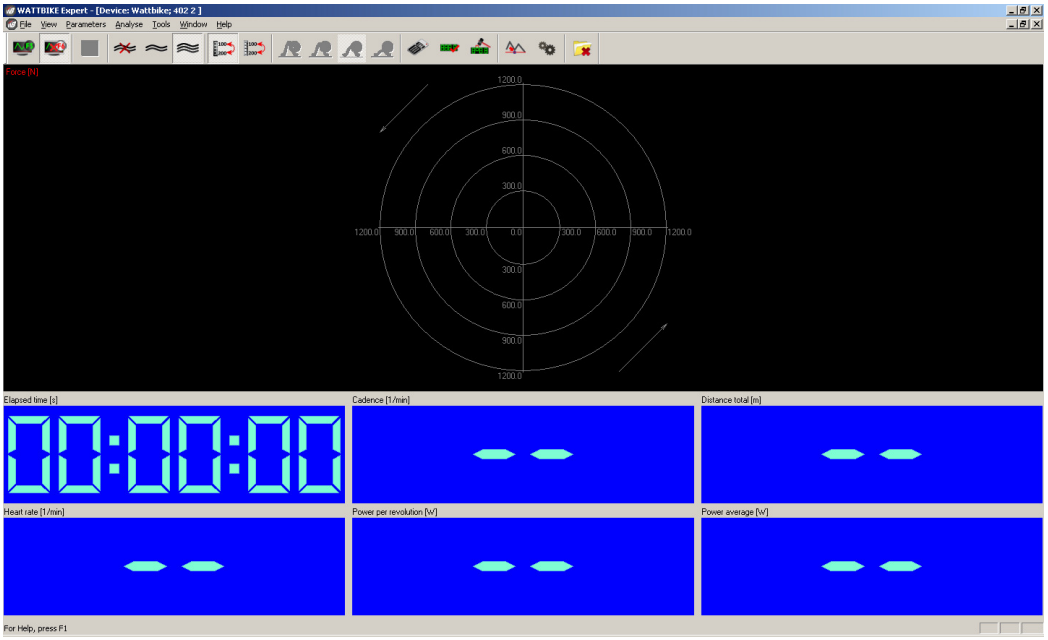
a) Chose the required modules by adding or removing modules from **Free modules** to the **Used modules** table.

b) In the top-right corner of the dialog box define the number of display rows.

c) Click the **Autoplace** button (in this way **Used modules** will be ordered in the number of rows defined).

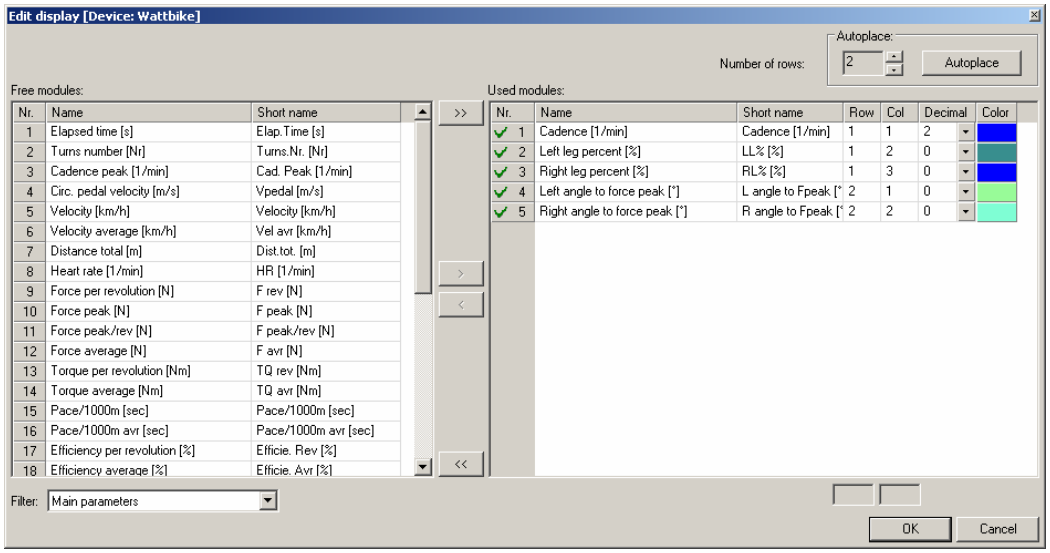
d) Click the **OK** button to accept the changes.

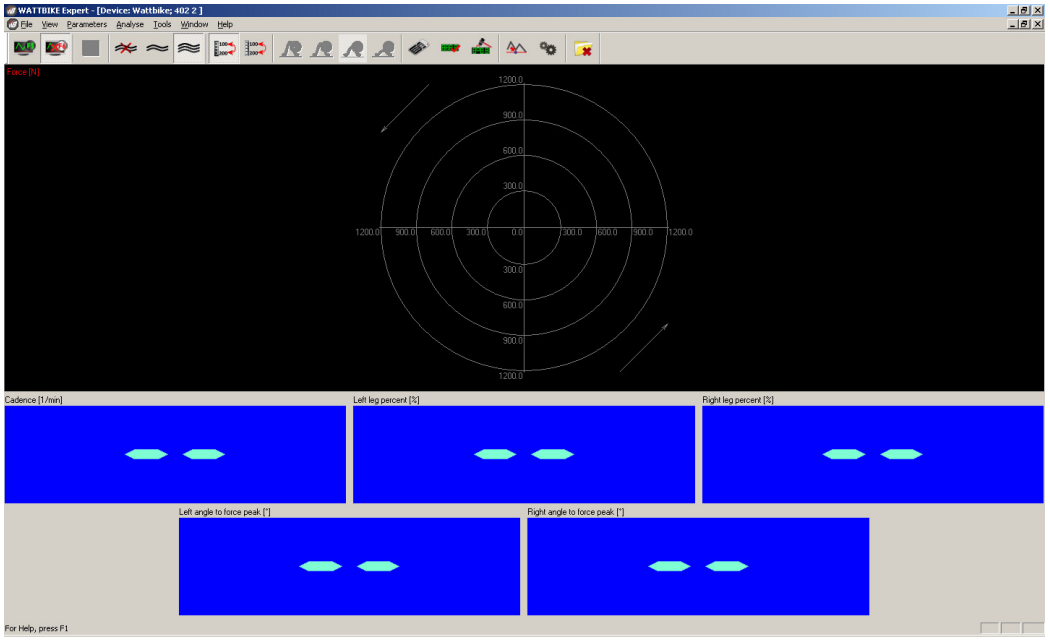
9. The **Polar** screen will be displayed with the selected **Analysis modules** (parameters) shown in the **Display bar** below the **Polar** view.



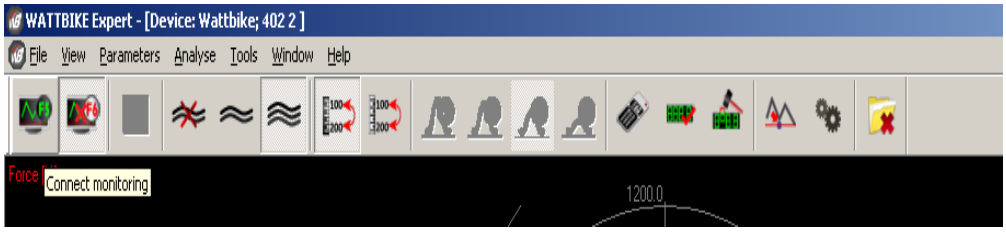
10. If concentrating on pedaling technique the **Analysis modules** (parameters) could be changed to:

Cadence [1 /min]
Left and Right leg percent [%]
Left and Right angle to force peak [˚]


Edit display [Device: Wattbike]
Number of rows:
Autoplace:
Autoplace
Free modules:
Used modules:
Nr.
Name
Short name
Row
Col
Decimal
Color
1 Elapsed time [s] Elap.Time [s]
2 Turns number [Nr] Turns.Nr. [Nr]
3 Cadence peak [1/min] Cad. Peak [1/min]
4 Circ. pedal velocity [m/s] Vpedal [m/s]
5 Velocity [km/h] Velocity [km/h]
6 Velocity average [km/h] Vel avr [km/h]
7 Distance total [m] Dist.tot. [m]
8 Heart rate [1/min] HR [1/min]
9 Force per revolution [N] F rev [N]
10 Force peak [N] F peak [N]
11 Force peak/rev [N] F peak/rev [N]
12 Force average [N] F avr [N]
13 Torque per revolution [Nm] TQ rev [Nm]
14 Torque average [Nm] TQ avr [Nm]
15 Pace/1000m [sec] Pace/1000m [sec]
16 Pace/1000m avr [sec] Pace/1000m avr [sec]
17 Efficiency per revolution [%] Efficie. Rev [%]
18 Efficiency average [%] Efficie. Avr [%]
1 Cadence [1/min] Cadence [1/min] 1 1 2
2 Left leg percent [%] LL% [%] 1 2 0
3 Right leg percent [%] RL% [%] 1 3 0
4 Left angle to force peak [°] L angle to Fpeak [° 2 1 0
5 Right angle to force peak [°] R angle to Fpeak [° 2 2 0
Filter:
Main parameters
OK
Cancel

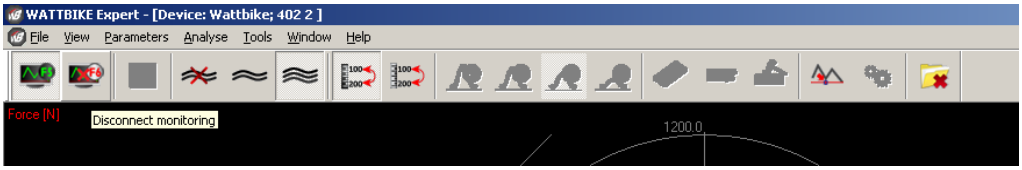

WATTBIKE Expert - [Device: Wattbike; 402 2]
File View Parameters Analyse Tools Window Help
Force [N]
Cadence [1/min]
Left leg percent [%]
Right leg percent [%]
Left angle to force peak [°]
Right angle to force peak [°]
For Help, press F1

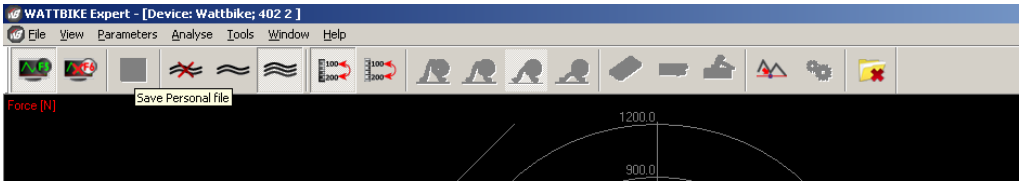
11. To start monitoring Click on the **Start** button in the **Toolbar** (**Connect monitoring**).



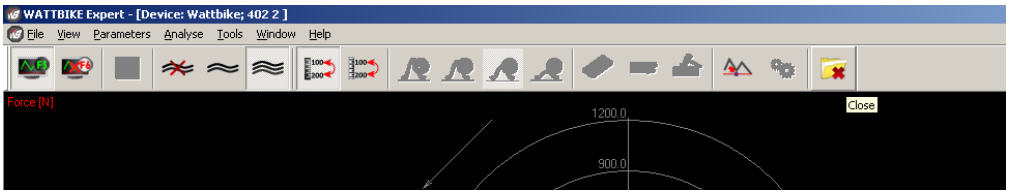
12. Start pedaling and the **Polar** view will display the **Analysis modules** (parameters) selected

13. When the workout is finished click the **Stop** button (**Disconnect** monitoring) and if you want to save the workout, click the **SAVE** button (**Save Personal file**).


WATTBIKE Expert - [Device: Wattbike; 402 2]
File View Parameters Analyse Tools Window Help
Force [N]
Disconnect monitoring
1200.0



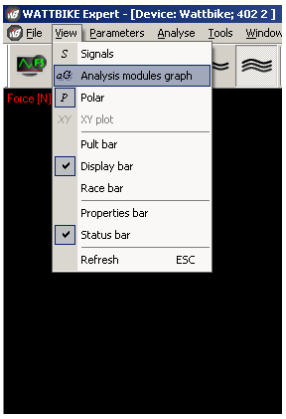
14. To close monitoring mode click the **Close (X)** button.



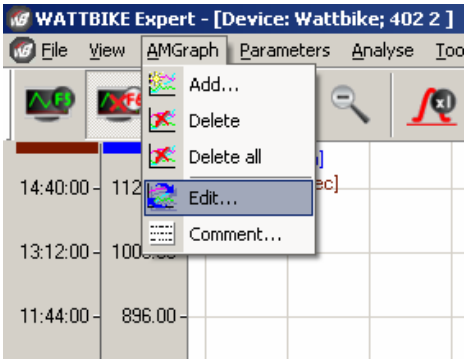
The analysis modules graph (AMGraph) and defining the graph and editing the analysis modules

The other useful **View** is the **Analysis modules graph** - keeping the same **Analysis modules** selected in the **Polar** view at the bottom of the screen a bar of line graph of one of more selected **Analysis modules** can be displayed.

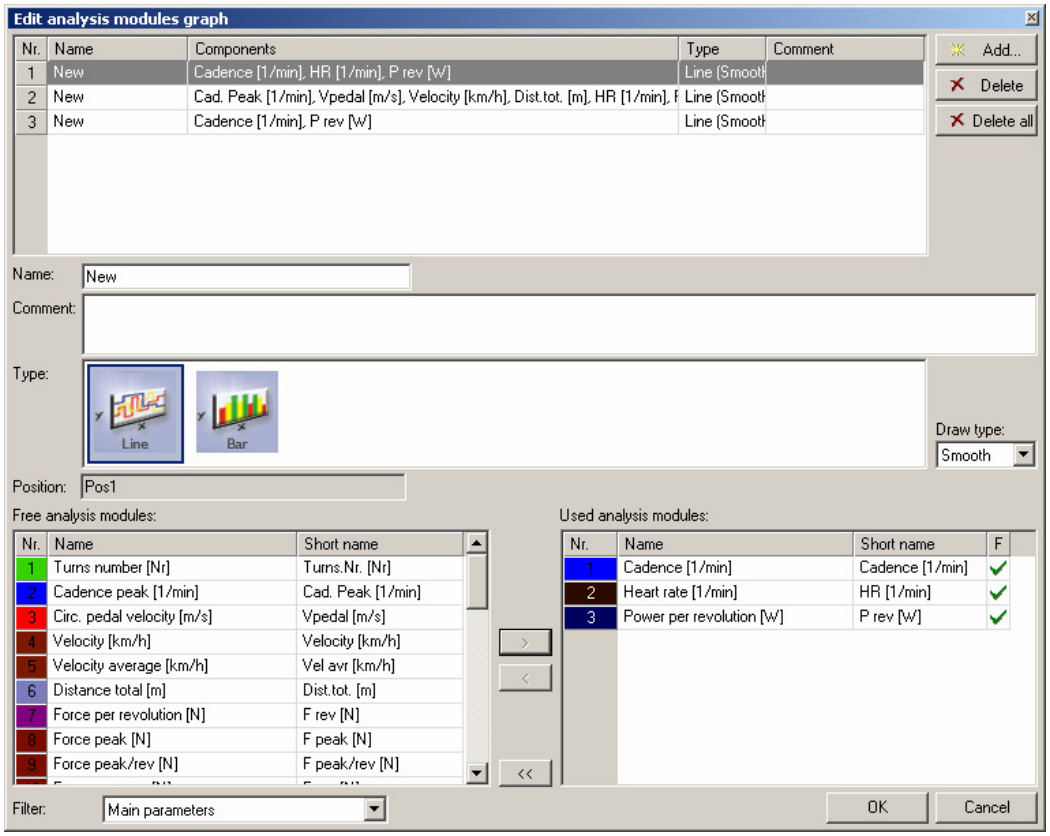
1. In the Menu at the top of the screen go to **View** and change to **Analysis modules graph**



2. The **Analysis module graph** will appear – in the Menu at the top of the screen go to **AMGraph** then **Edit…**



3. The **Edit analysis modules graph** window will open.


Edit analysis modules graph
Nr.
Name
Components
Type
Comment
1 New Cadence [1/min], HR [1/min], P rev [W] Line (Smooth
2 New Cad. Peak [1/min], Vpedal [m/s], Velocity [km/h], Dist.tot. [m], HR [1/min], Line (Smooth
3 New Cadence [1/min], P rev [W] Line (Smooth
Add...
Delete
Delete all
Name: New
Comment:
Type:
Line
Bar
Draw type:
Smooth
Position: Pos1
Free analysis modules:
Nr. Name Short name
1 Turns number [Nr] Turns.Nr. [Nr]
2 Cadence peak [1/min] Cad. Peak [1/min]
3 Circ. pedal velocity [m/s] Vpedal [m/s]
4 Velocity [km/h] Velocity [km/h]
5 Velocity average [km/h] Vel avr [km/h]
6 Distance total [m] Dist.tot. [m]
7 Force per revolution [N] F rev [N]
8 Force peak [N] F peak [N]
9 Force peak/rev [N] F peak/rev [N]
Used analysis modules:
Nr. Name Short name F
1 Cadence [1/min] Cadence [1/min]
2 Heart rate [1/min] HR [1/min]
3 Power per revolution [W] P rev [W]
Filter: Main parameters
OK
Cancel

Select the **Type** of graph required – **Line** or **Bar.**

The **Analysis modules** (parameters) displayed in this example are:

Cadence [1/min], Heart rate [1/min] and Power per revolution [W].

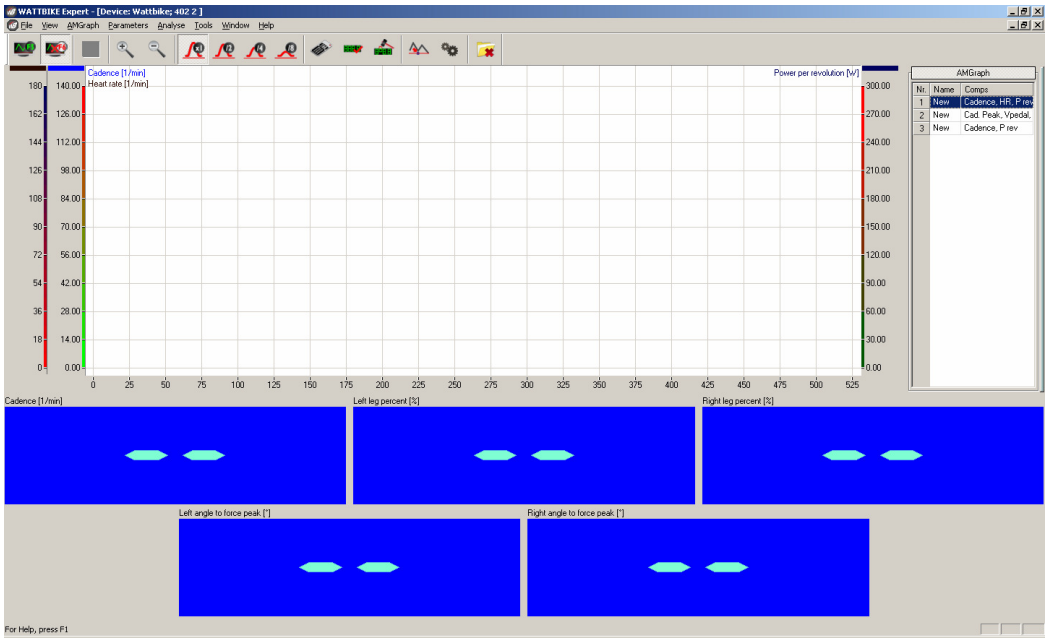
To define the **Analysis modules** (parameters) that should be displayed:

a) Chose the required modules by adding or removing modules from **Free analysis modules** to the **Used analysis modules** table.

b) Click the **OK** button to accept the changes.

4. The **Analysis modules graph** will be displayed showing the **Analysis modules** (parameters) selected for the graph. The original **Analysis modules** selected will remain on view in the **Display bar** at the bottom of the screen.

Cadence [1/min], Heart rate [1/min] and Power per revolution [W]

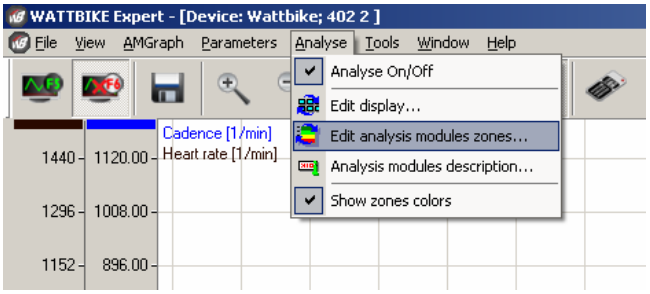

WATTBIKE Expert - [Device: Wattbike; 402 2]
File View AMGraph Parameters Analyse Tools Window Help
Cadence [1/min]
Heart rate [1/min]
Power per revolution [W]
AMGraph
Nr. Name Comps
1 New Cadence, HR, P rev
2 New Cad. Peak, Vpedal,
3 New Cadence, P rev
Cadence [1/min]
Left leg percent [%]
Right leg percent [%]
Left angle to force peak [°]
Right angle to force peak [°]
For Help, press F1

Note the different colours for the **Analysis modules** on the y-axis (vertical) of the graph. These colours represent 'workout zones' and can be set in the **Analyse** function – see next section (these colours also appear in the **Display bar**).

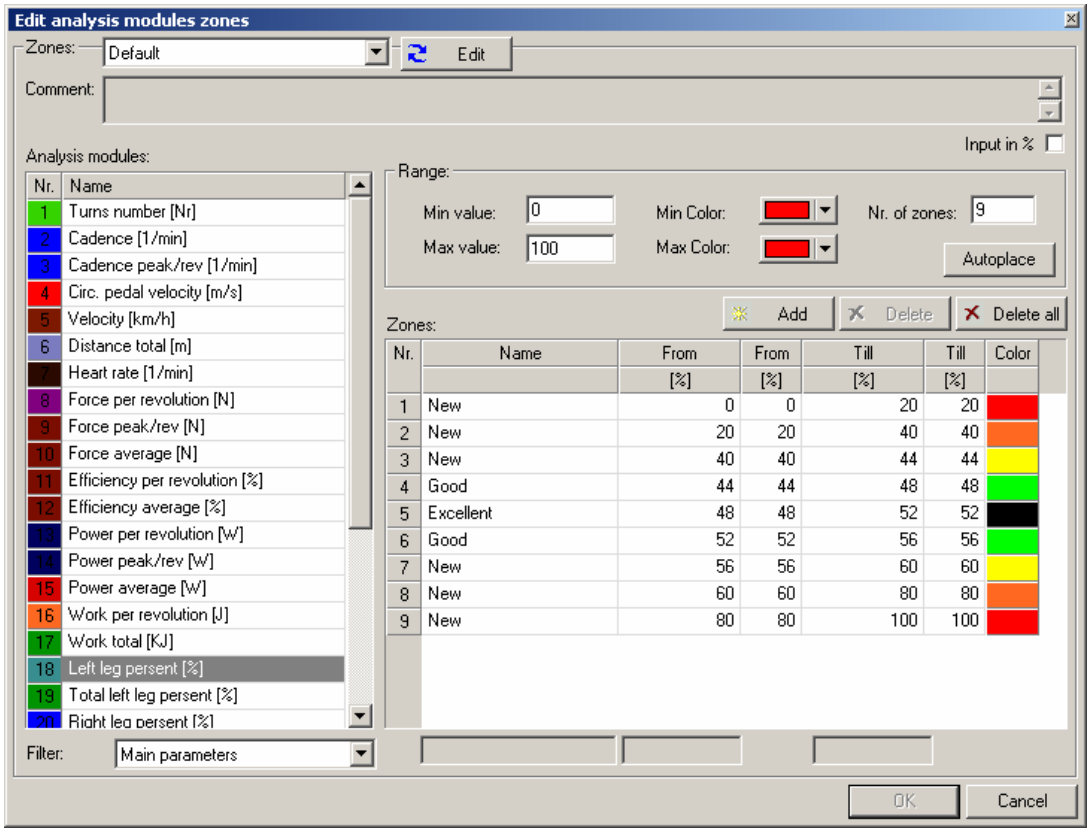
Creating analysis modules zones

Each Analysis module (parameter) can be predefined with zones (and a colour for every zone) representing the quality of that parameter. Resulting bars and background colour of that parameter in the **Display bar** are drawn in the corresponding colour.

1. In the Menu at the top of the screen go to **Analyse** then **Edit Analysis Modules Zones…**



2. The **Edit analysis modules zones** window will open



In this example 9 zones for Left and Right leg [%] with the 44-48% and 52-56% named as Good and 48-52% Excellent.

To define **Analysis module zones**:

a) Choose the required module from the **Analysis modules** list.
b) Define the value range (Min & Max value) and colours (Min & Max colour).
c) Define the number of zones.
d) Zones can be added, edited, named or deleted manually by choosing the row in the Zones table and changing the values and colours.
e) Click the OK button to accept the changes.

3. By placing the curser over the vertical bars on the graph when analyzing a saved workout the appropriate zone will be highlighted. In the example below the highlighted section is left and right leg % in the zone 48% to 52%.

Left and **Right leg percent [%]**

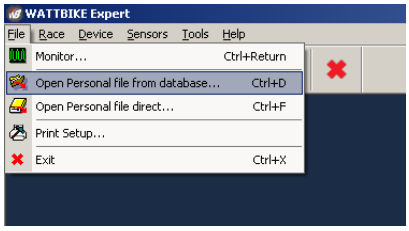
Viewing a Saved workout – Pedal revolution and Time modes

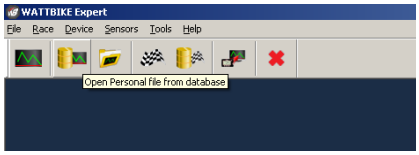
RECALL FROM DATABASE is a function used to open recorded workout data from the database. All workouts saved from the **MONITOR** function or transferred from the Wattbike Performance Computer (using the **TRANSFER** function – see next section) are saved in a **Personal file** (.pdb extension) and listed in the database.

Using the **RECALL FROM DATABASE** function the required record in the database can be recalled.

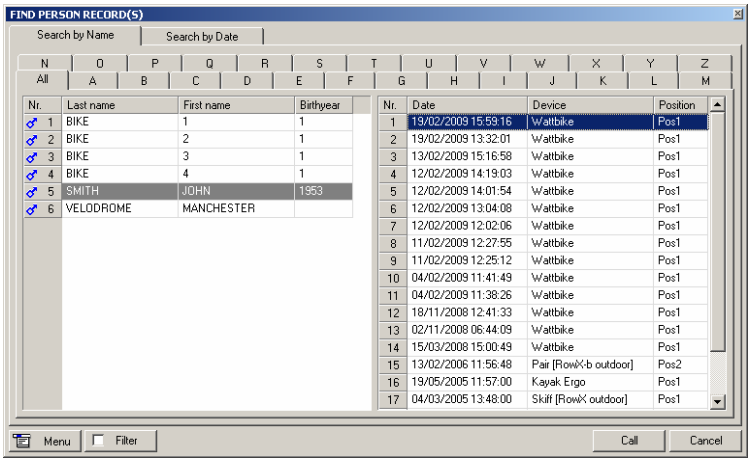
To recall a Personal file from the database:

1. In the Menu at the top of the screen go to **File** then **Open personal file from database…** or click on the database icon in the **Toolbar.**





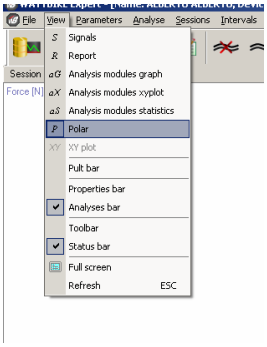
2. The **FIND PERSON RECORD (S)** window will open. Select the record required.


FIND PERSON RECORD(S)
Search by Name
Search by Date
Nr. Last name First name Birthyear
1 BIKE 1 1
2 BIKE 2 1
3 BIKE 3 1
4 BIKE 4 1
5 SMITH JOHN 1953
6 VELODROME MANCHESTER
Nr. Date Device Position
1 19/02/2009 15:59:16 Wattbike Pos1
2 19/02/2009 13:32:01 Wattbike Pos1
3 13/02/2009 15:16:58 Wattbike Pos1
4 12/02/2009 14:19:03 Wattbike Pos1
5 12/02/2009 14:01:54 Wattbike Pos1
6 12/02/2009 13:04:08 Wattbike Pos1
7 12/02/2009 12:02:06 Wattbike Pos1
8 11/02/2009 12:27:55 Wattbike Pos1
9 11/02/2009 12:25:12 Wattbike Pos1
10 04/02/2009 11:41:49 Wattbike Pos1
11 04/02/2009 11:38:26 Wattbike Pos1
12 18/11/2008 12:41:33 Wattbike Pos1
13 02/11/2008 06:44:09 Wattbike Pos1
14 15/03/2008 15:00:49 Wattbike Pos1
15 13/02/2006 11:56:48 Pair [RowX-b outdoor] Pos2
16 19/05/2005 11:57:00 Kayak Ergo Pos1
17 04/03/2005 13:48:00 Skiff [RowX outdoor] Pos1
Menu
Filter
Call
Cancel

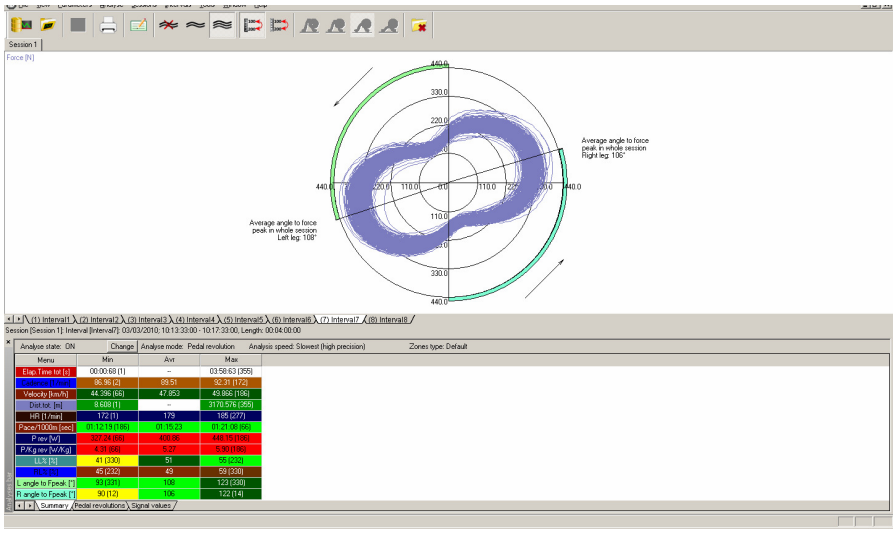
3. Click the **Call** button and the file is opened in **Recall** mode.

4. Once a **Personal file** has been opened from the database the workout can be analyzed in the **Analysis modules graph** mode. To view a **Polar** or

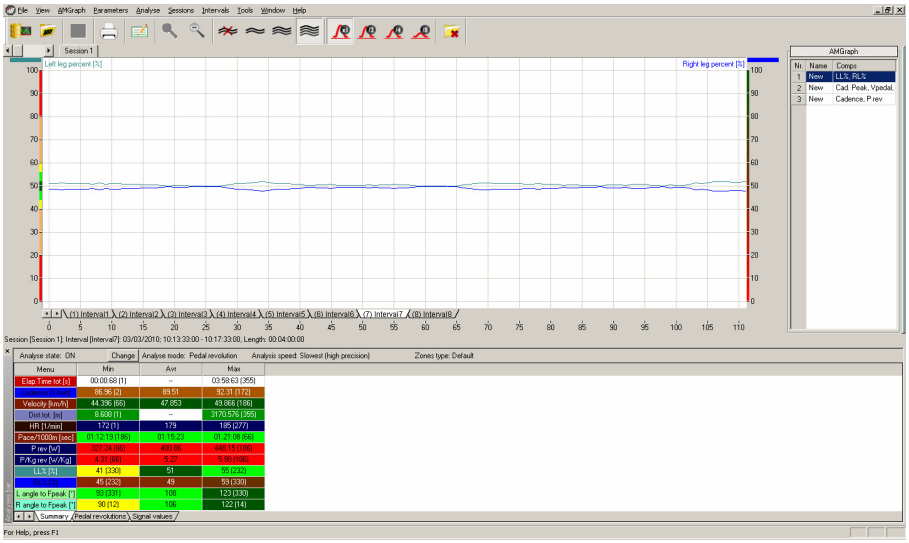
Analysis module graph click on **View** in the program menu and click on the graph required:



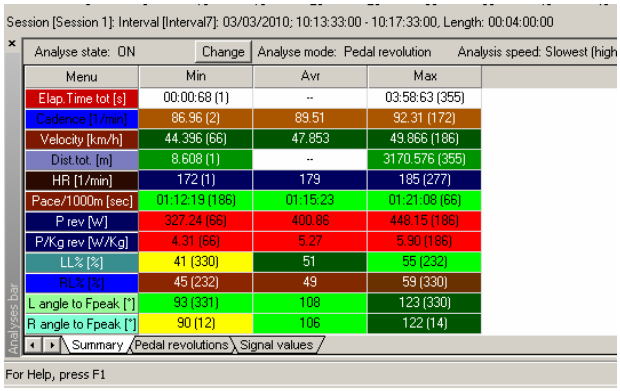
Polar view



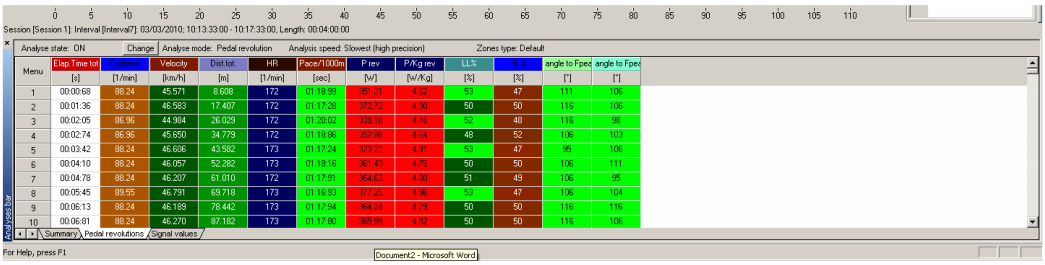
Analysis modules graph view



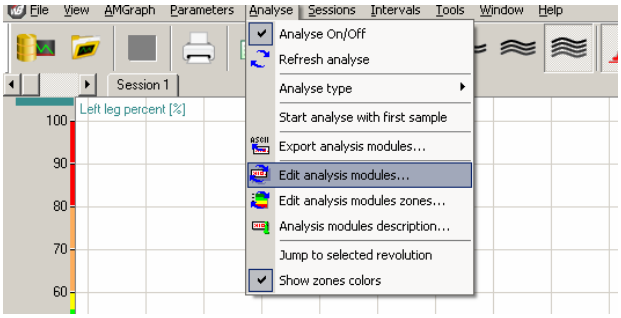
5. The data for all 12 default parameters is shown in the Summary tab at in the lower part of the screen.



6. Click on the **Pedal revolutions** tab to show the **Analyse bar** spreadsheet in the lower part of the screen. Each row of the table represents one pedal revolution with data for the 12 default parameters.

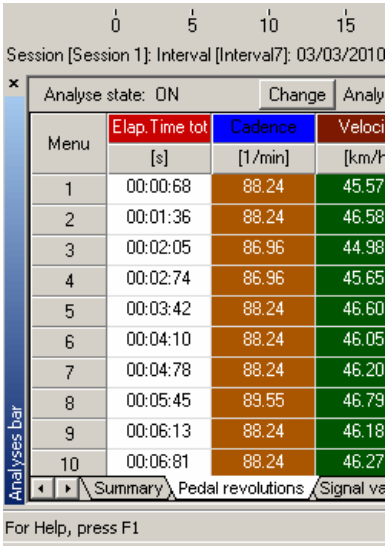


Use the **Analyse** then **Edit Display…** function to select the **Analysis modules** (parameters) for analysis or to display all parameters.

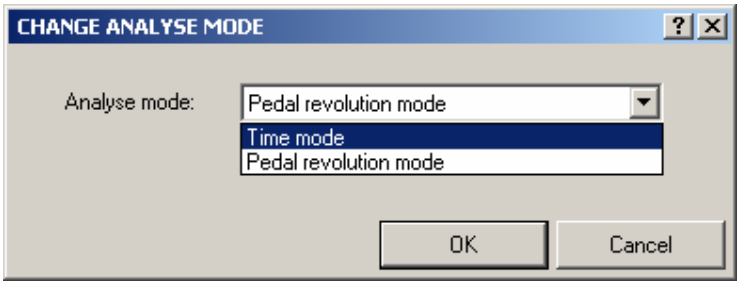


7. The main default views are in **Pedal revolution mode**. Workouts can also be viewed in **Time mode**.

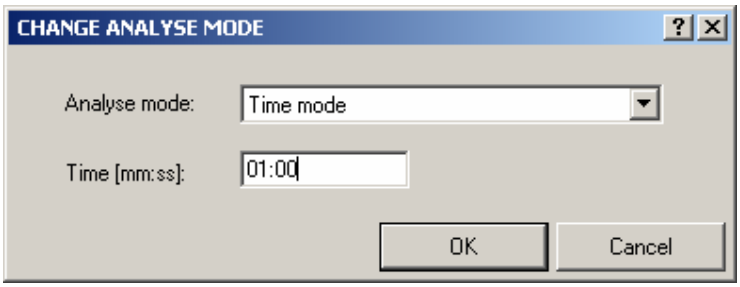
   Click on the **Change** button in the **Analyse bar**.



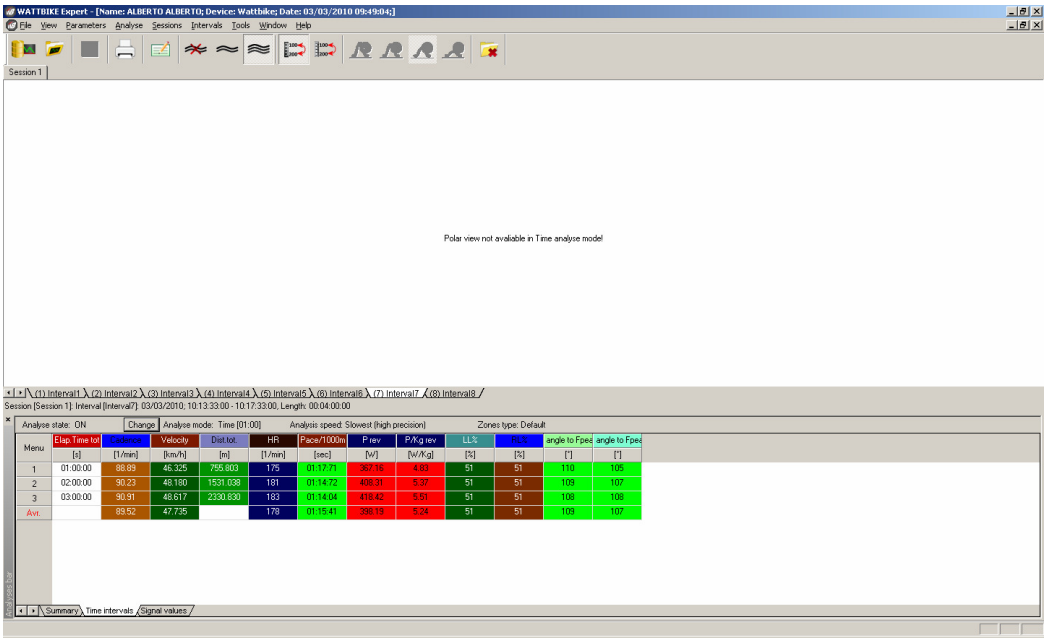
The CHANGE ANALYSE MODE dialogue box will appear – Change to Time mode.



Change the time in mm:ss to the time interval required.



NOTE: In **Time mode** the Polar (force curve is not shown as it is based on pedal revolution data not time.

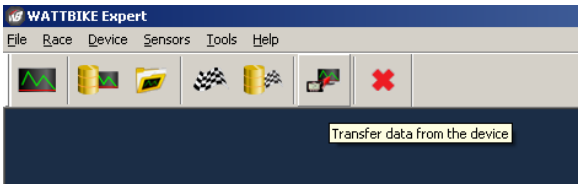

WATTBIKE Expert - [Name: ALBERTO ALBERTO; Device: Wattbike; Date: 03/03/2010 09:49:04;]
File View Parameters Analyse Sessions Intervals Tools Window Help
Session 1
Polar view not available in Time analyse model
(1) Interval1 (2) Interval2 (3) Interval3 (4) Interval4 (5) Interval5 (6) Interval6 (7) Interval7 (8) Interval8
Session [Session 1]: Interval [Interval7]: 03/03/2010; 10:13:33:00 - 10:17:33:00, Length: 00:04:00:00
Analyse state: ON
Change
Analyse mode: Time [01:00]
Analysis speed: Slowest (high precision)
Zones type: Default
Menu
Elap. Time tot
Distance
Velocity
Dist tot
HR
Pace/1000m
P rev
P/Kg rev
LL%
RL%
angle to Fpedal
angle to Fpedal
[s]
[1/min]
[km/h]
[m]
[1/min]
[sec]
[W]
[W/Kg]
[%]
[%]
[°]
[°]
1 01:00:00 88.89 46.335 755.903 175 01:17.71 357.18 4.83 51 51 110 105
2 02:00:00 90.23 48.180 1531.038 181 01:14.72 408.91 5.37 51 51 109 107
3 03:00:00 90.91 48.617 2330.830 183 01:14.04 418.42 5.51 51 51 108 108
Avr. 89.52 47.735 178 01:15.41 398.19 5.24 51 51 109 107
Summary
Time intervals
Signal values

Transferring a workout from the Wattbike Performance Computer

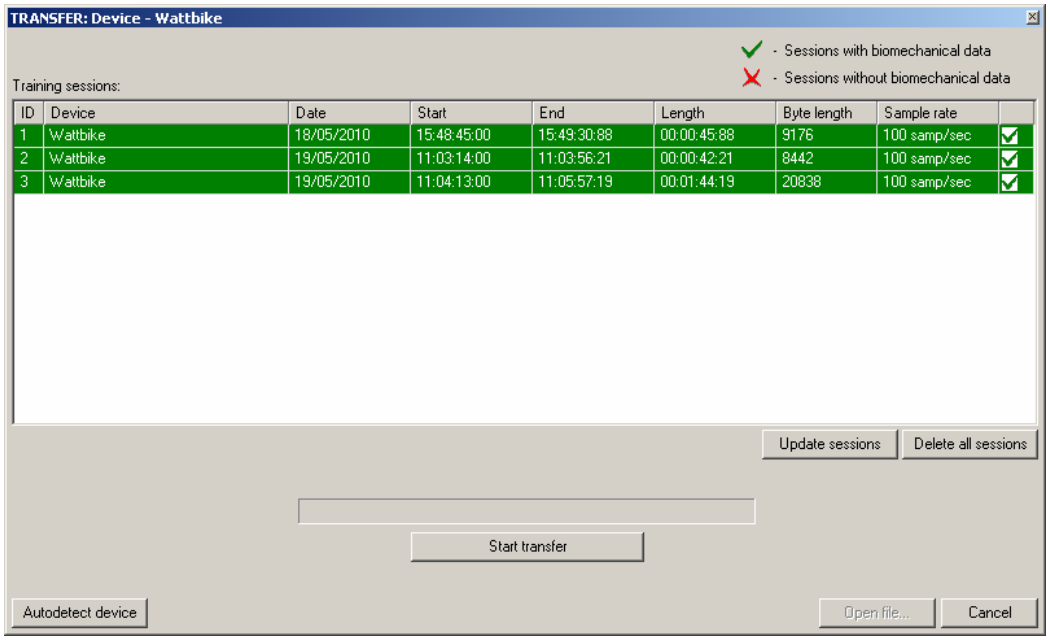
After a workout the data from the **Wattbike Performance Computer** can be transferred to a computer to perform a detailed analysis of the workout.

To transfer data:

1. Click the **Transfer** icon in the **Toolbar,** the software will autodetect the connected Wattbike.

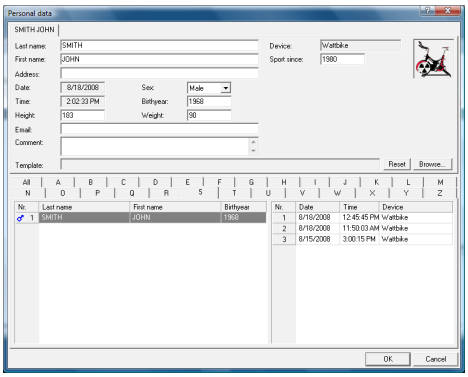


2. The **TRANSFER** window will open showing all the workouts stored in the **Wattbike Performance Computer**. Select one or multiple workouts for transfer.


TRANSFER: Device - Wattbike
- Sessions with biomechanical data
- Sessions without biomechanical data
Training sessions:
ID Device Date Start End Length Byte length Sample rate
1 Wattbike 18/05/2010 15:48:45:00 15:49:30:88 00:00:45:88 9176 100 samp/sec
2 Wattbike 19/05/2010 11:03:14:00 11:03:56:21 00:00:42:21 8442 100 samp/sec
3 Wattbike 19/05/2010 11:04:13:00 11:05:57:19 00:01:44:19 20838 100 samp/sec
Update sessions
Delete all sessions
Start transfer
Autodetect device
Open file...
Cancel

3. Click **Start transfer**.

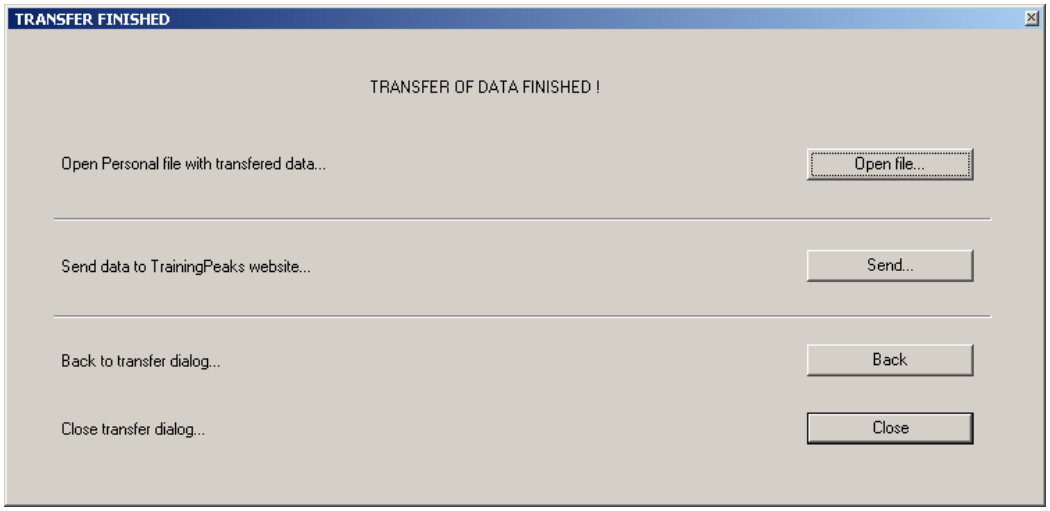
4. The **Personal data** window will open, chose a destination for the transfer.



5. Click **OK** and transfer the workout (s).

6. When the transfer is finished, in the **TRANSFER FINISHED** window click **Open file…** to open transferred workouts in **Recall** Mode or click **Close** to return in main program window.

For users of Training Peaks/WKO + click **Send…** to transfer the log to your Training Peaks account.



How to Update the Wattbike Performance Computer Firmware

1. Save the Firmware update file to file on your PC (obtained from the Wattbike Download Centre) to your PC.

   http://wattbike.com/uk/wattbike/downloads/

2. Save any sessions that are stored in the **Memory** to Wattbike Expert if you need to keep them as the update process will clear the **Performance Computer Memory.**

3. During the update process the **Performance Computer** will switch on – this is normal – do not use the **Performance Computer** buttons until the update process has been completed.

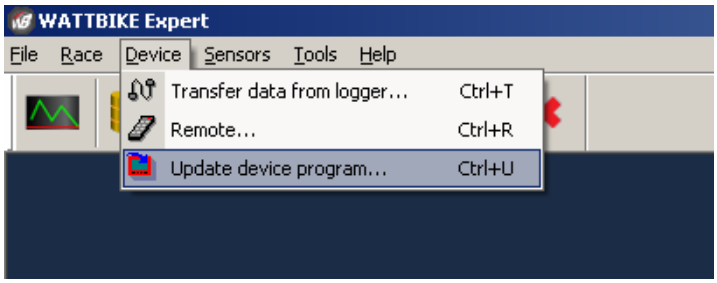
4. Open **Wattbike Expert Software.**

5. Click on the '**X**' next to '**Exit**' to clear the Welcome screen.

6. Attach a USB cable to the PC and the USB connection on the back of the **Wattbike Performance Computer.**

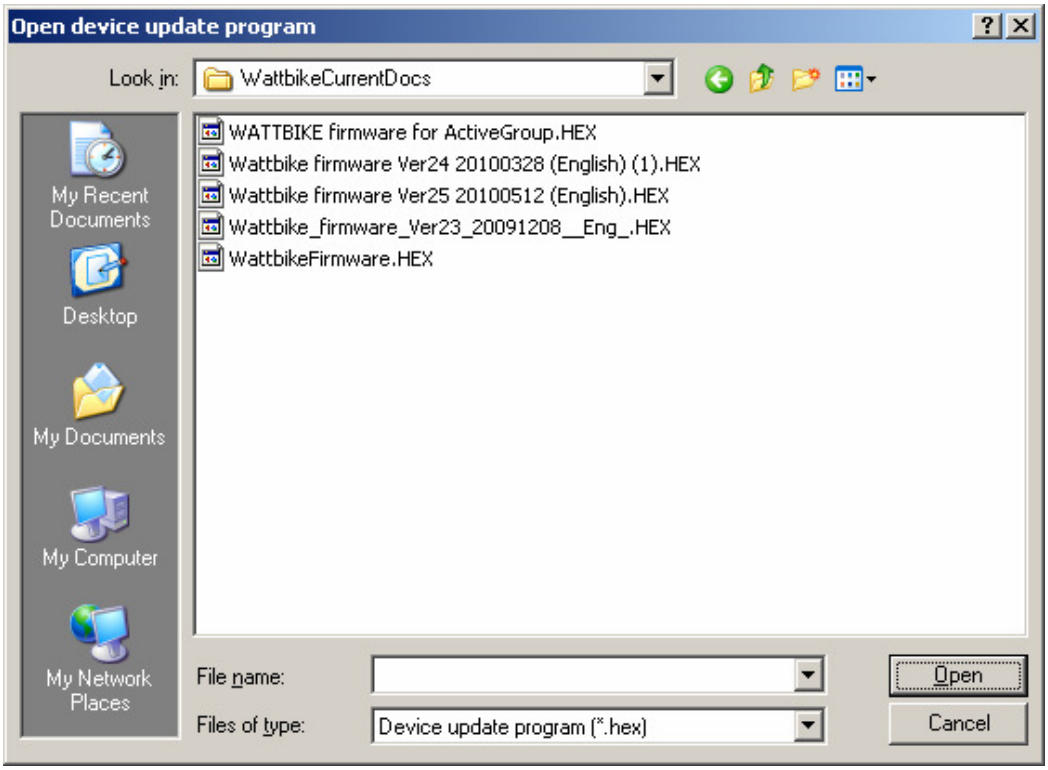
7. Press **ENTER** and the **ON** button together on the **Wattbike Performance Computer** – a grey margin should appear on the **Wattbike Performance Computer** display.

8. In **Wattbike Expert Software** at the top of the screen - from the '**Menu bar**' choose '**Device**' and '**Update device program …**'



9. If the software does not recognize the **Wattbike Performance Computer** disconnect and reconnect the USB cable.

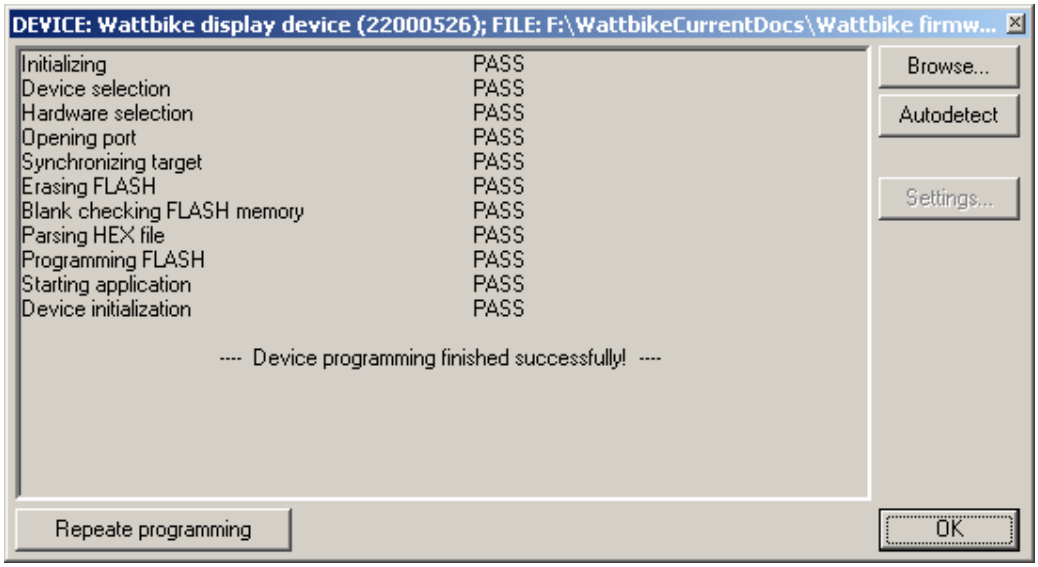
10. '**Open device update program**' window will open.



11. Find the saved Firmware update file from file ('**Device update program [*.hex]**').

12. Select the file and click '**Open**' – the update will start automatically.

13. When the update is completed the '**Device**' window will show:



…Device programming finished successfully! ....

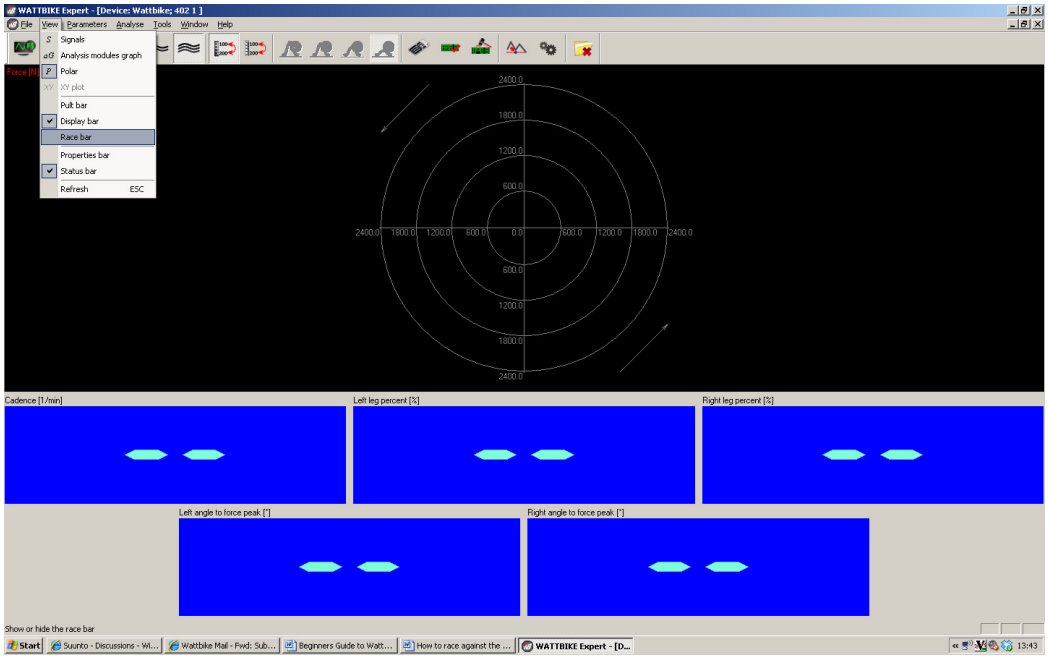
14. Disconnect the USB cable.

15. Your updated **Wattbike Performance Computer** is ready to use.

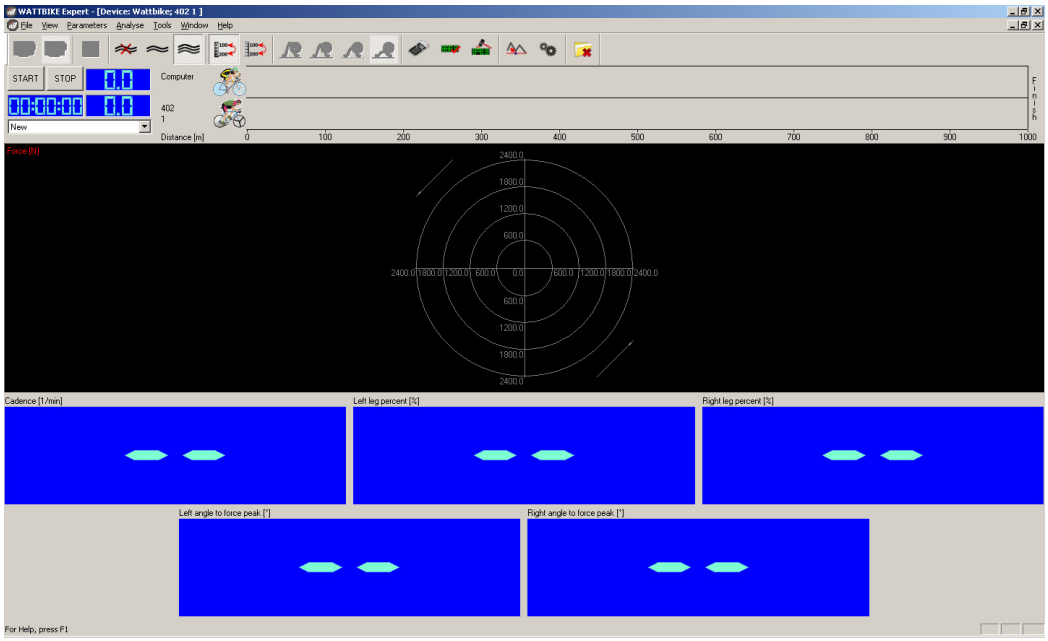
How to race against the computer

1. Connect the **Wattbike Performance Computer** to the software in the usual way.

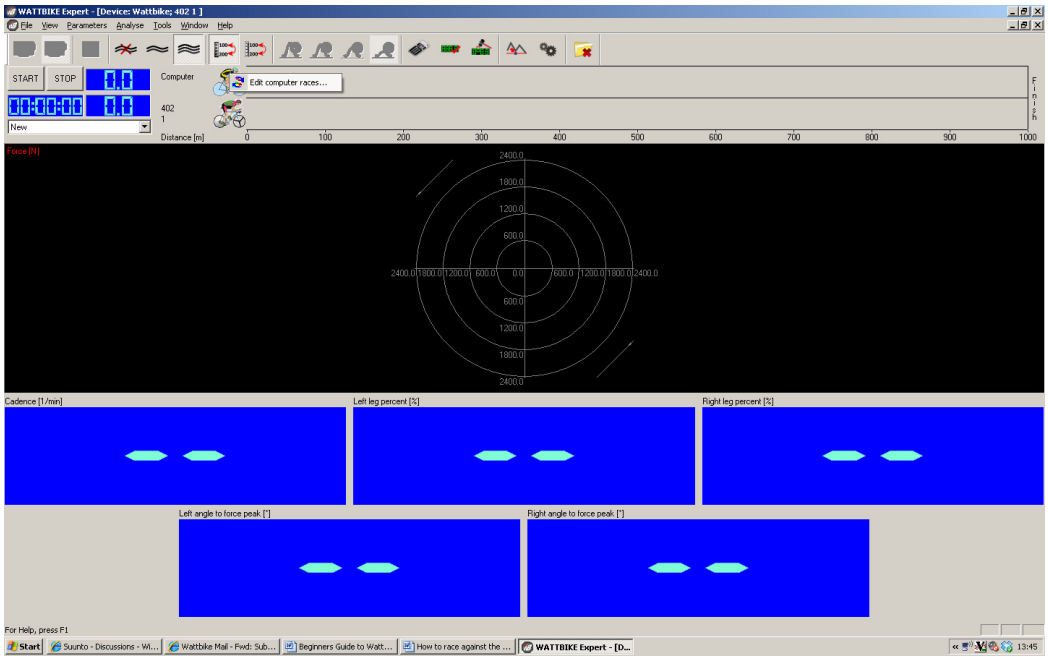
2. In **View** click on **Race bar.**



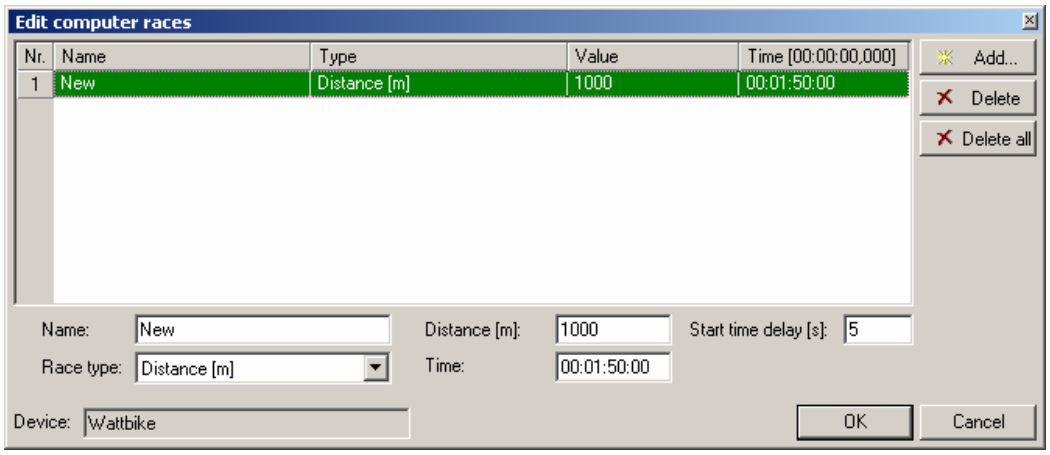
3. The Computer Vs Named rider appears at the top of the screen – the default ‘race’ setting is 1000 m.



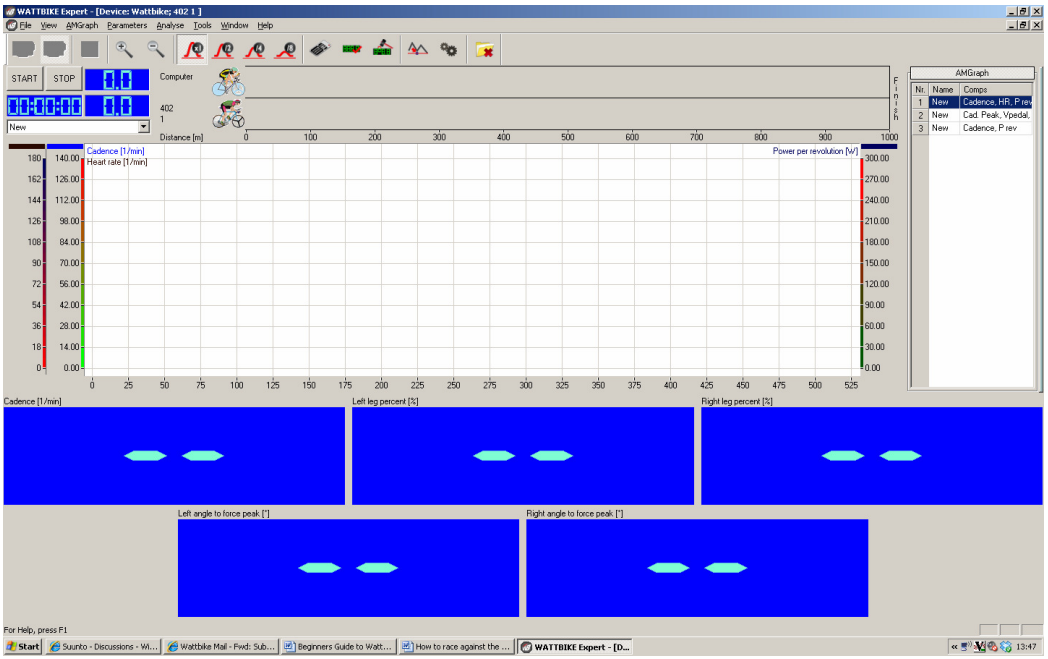
4. Right click on the bike icon then **Edit computer races …**

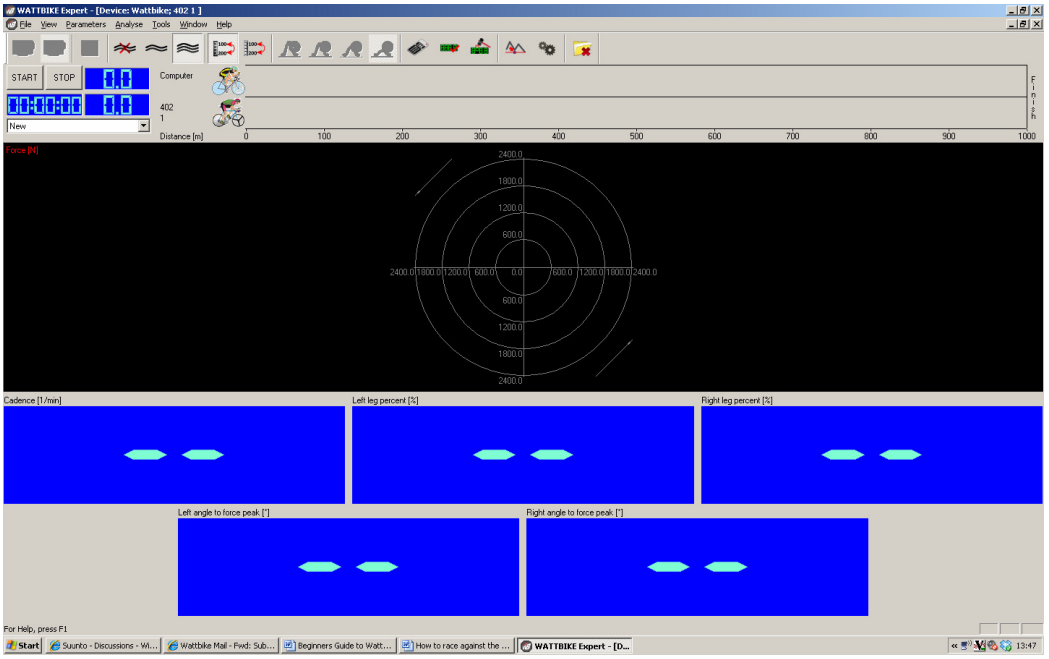


5. The **Edit computer races** dialog box appears – **Add** races as needed, time = pace for the computer bike.

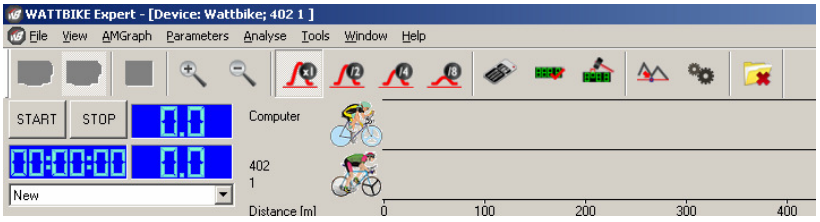


6. Before starting revert to the screen required – Analysis modules graph or Polar – **View** – then **Analysis modules graph** or **Polar** and set up parameters to be displayed on the graph or in the display bar as required.





7. The race bar has **START** and **STOP** – box below START and STOP is **Start time delay (s)** and then the two boxes to the right of STOP are distance covered as race progresses.



8. Put the **Wattbike Performance Computer** in **Just ride** then press **ENTER**.

9. The **Wattbike Performance Computer** does not revert to the race screen or **ReRide** type display so watch the countdown and go! Time is shown in Expert not in the **Wattbike Performance Computer**.

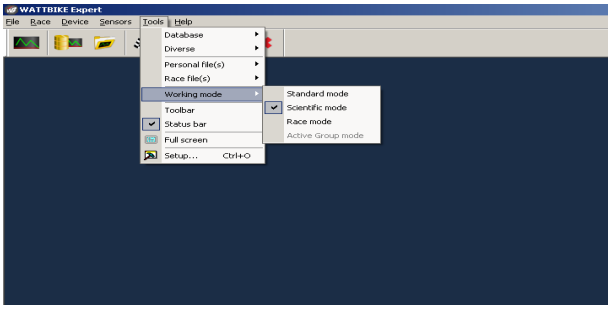
10. Note that the computer screen is real time i.e. distance covered will lag behind the distance on the **Wattbike Performance Computer**. Also note that the **Wattbike Performance Computer** will keep running after the computer race is finished – this is not like being in the Race system itself – so watch the computer screen for the finish of the 'race' and click **STOP**.

11. Once the 'race' is finished – **STOP** and **Save** and the data file is in the database.

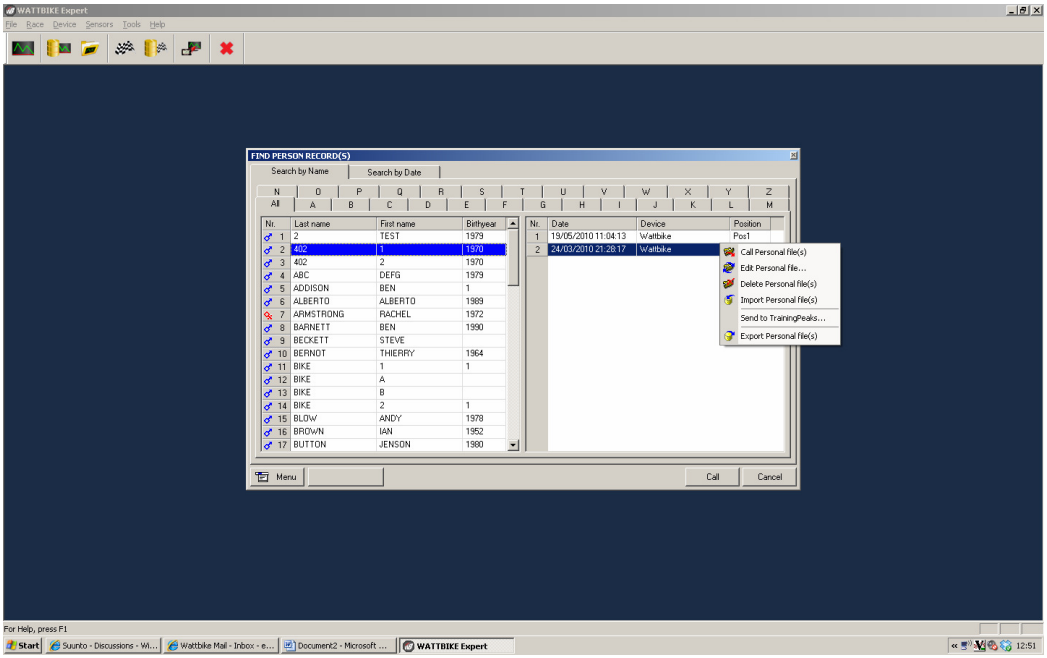
Other useful functions

A - Scientific mode

Check that the software is in **Scientific mode** to ensure all functions are activated. Go to **Tools** then **Working mode** and change to **Scientific mode**



B - Personal file management

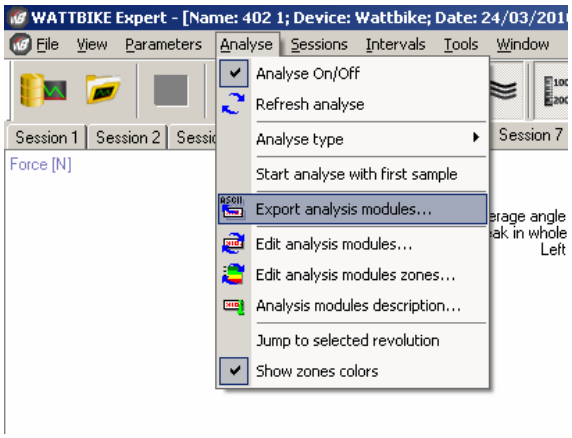


Right click on a file in the database – options:

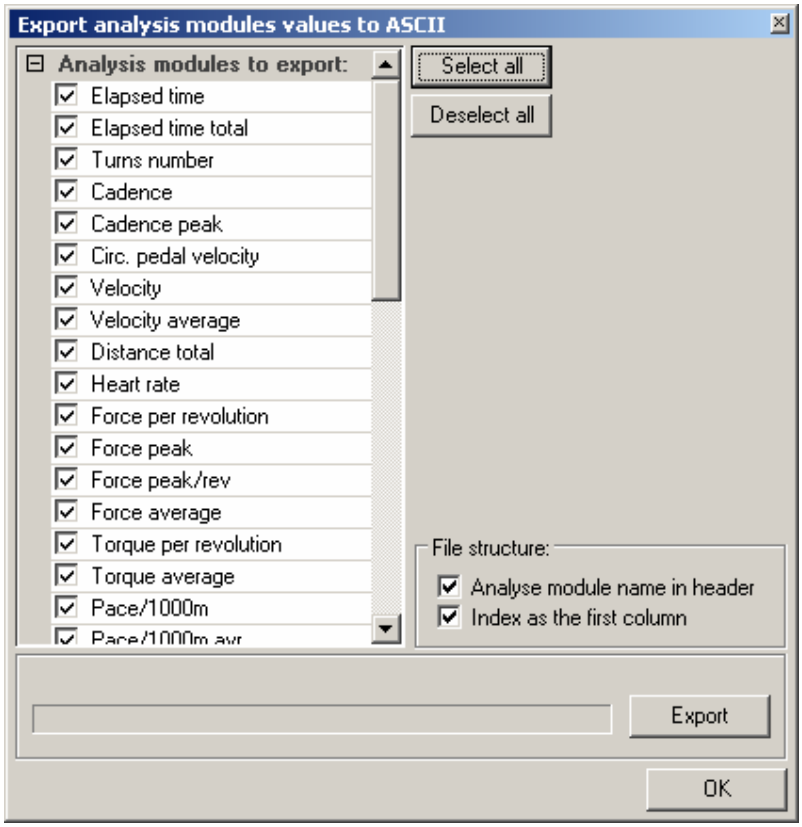
Call Personal file (s)
Edit Personal file…
Delete Personal file (s)
Import Personal file (s)
Send to TrainingPeaks…
Export Personal files (s)

C - Exporting data

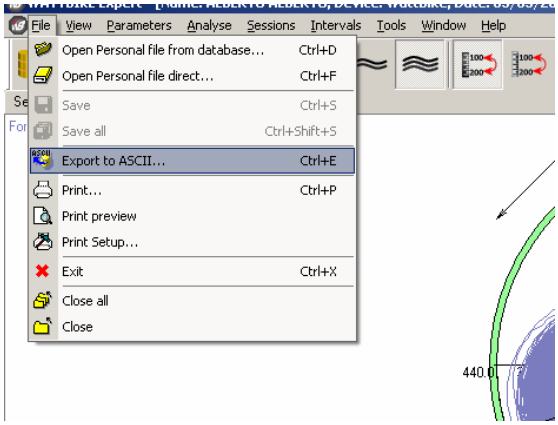
To export the analysis modules data (to Excel for instance) go to **Analyse** then **Export analysis modules…**



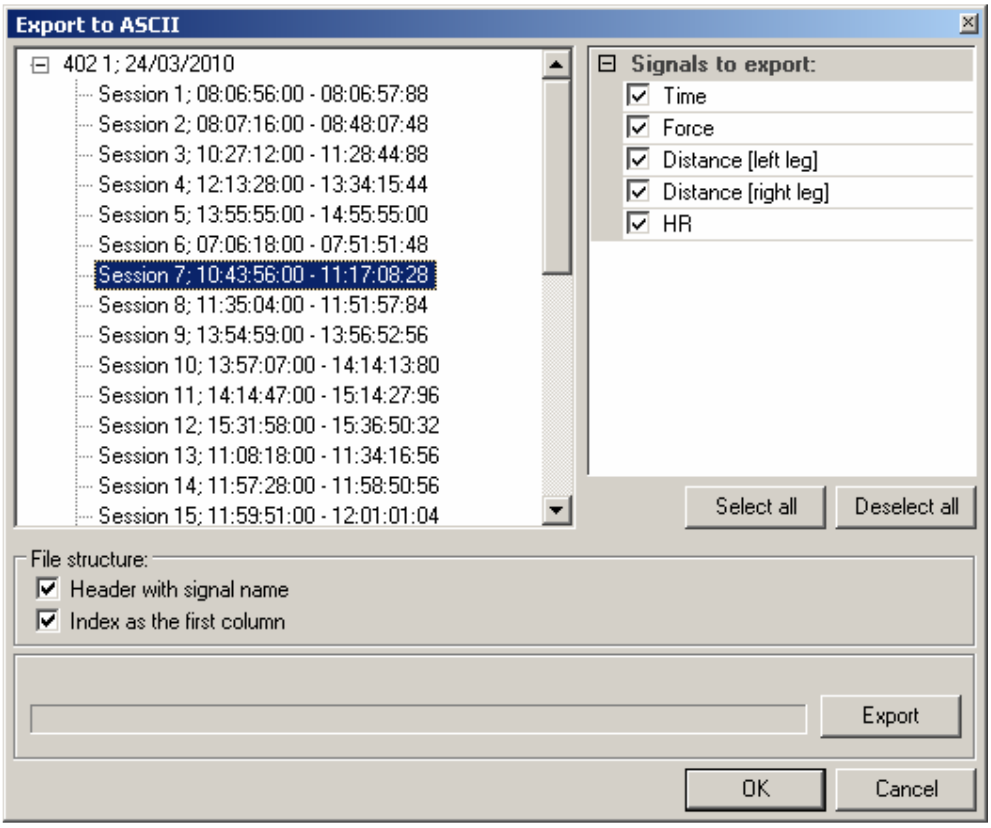
The **Export analysis modules values to ASCII** dialogue box will open, select the **Analysis modules to export:** required and click **Export** and save to a folder



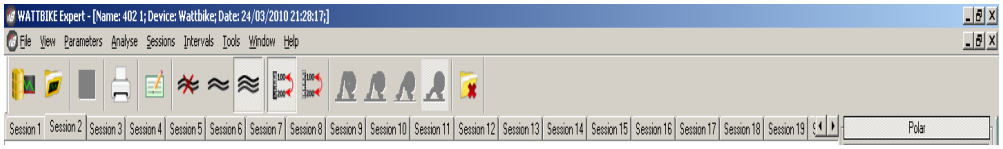
To export the signal data (to Excel for instance) go to **File** then **Export to ASCII**



The **Export to ASCII** dialogue box will open, select the **Signals to export**: click **Export** and save the file to a folder



D – Open file Toolbar

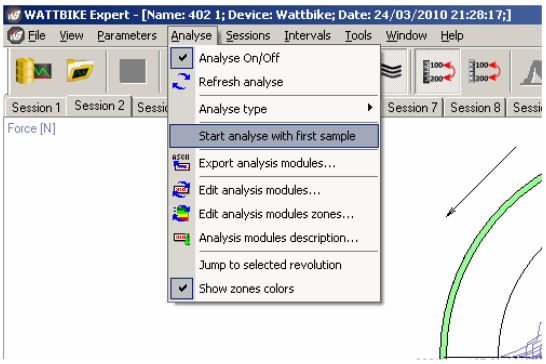

WATTBIKE Expert - [Name: 402 1; Device: Wattbike; Date: 24/03/2010 21:28:17;]
File View Parameters Analyse Sessions Intervals Tools Window Help
Session 1 Session 2 Session 3 Session 4 Session 5 Session 6 Session 7 Session 8 Session 9 Session 10 Session 11 Session 12 Session 13 Session 14 Session 15 Session 16 Session 17 Session 18 Session 19
Polar

Moving from left to right the icons are:

Open Personal file from database
Open Personal file from media
Save Personal file
Print the active document
Personal file comment
Filter off
Filter 1
Filter 2
Autoscale
Manual scale
Amplitude X1 and /2 and /4 and /8 – for use with Manual scale
Close

E – Start analyse with first sample

Used to smooth the data and remove a first partial pedal revolution. Go to **Analyse** make sure **Analyse On/off** is on and switch off **Start analyse with first sample**


WATTBIKE Expert - [Name: 402 1; Device: Wattbike; Date: 24/03/2010 21:28:17;]
File View Parameters Analyse Sessions Intervals Tools Window Help
Analyse On/Off
Refresh analyse
Analyse type
Start analyse with first sample
Export analysis modules...
Edit analysis modules...
Edit analysis modules zones...
Analysis modules description...
Jump to selected revolution
Show zones colors
Session 1 Session 2 Session 7 Session 8
Force [N]